

WP(C-8)4J 3/6

CUB FOODS

PROJECT:

Cub Foods, Bedford Park, IL

ISSUE:

- Uncomfortable shopping experience in the frozen food aisles
- Fogged cooler doors
- Ice build-up on food

SOLUTION:

Desiccant cooling using a Munters 530 Dry Cool 16,500 cfm

RESULTS:

- Vastly improved shopping environment for customers
- Lower equipment maintenance
- Improved product quality

CUB FOODS GETS COMFORT AND SAVINGS IN THE BAG WITH DESICCANT COOLING

When the Cub Foods grocery store opened in Bedford Park, shoppers on the frozen food aisle got a special treat – something better than free food samples. They enjoyed a comfortable shopping temperature, fog-free glass doors and visually appealing products without messy ice build-up. All that, thanks to natural-gas-fired desiccant cooling – an efficient way to supply very dry air at a comfortable temperature.

"Shoppers may not necessarily notice these things if we do them right," explains Chuck Odom, Cub Foods store director. "But we certainly hear about them if there's a problem. That's why we selected a desiccant dehumidification system for the new store from the very beginning.

"With a regular cooling system, you have to turn the temperature way down during the summer months to compensate for the high heat and humidity," Odom continues. "That makes it very cold and uncomfortable for shoppers." Without humidity control, condensation forms in the freezer cases. The glass doors fog up, and people can't see what's inside. Opening and closing the doors just makes the problem worse. The products end up with ice build-up and eventually damage. And ice forms on the equipment coils, leading to frequent breakdowns. All these problems can be very costly.

Desiccant systems are a well-established natural gas technology and often the most effective space conditioning solution for hospitals, schools, hotels/motels, office buildings, retail establishments and supermarkets, as well as a wide variety of industrial and technical facilities. According to industry sources, desiccant cooling should be considered as an option if the needed dew point is below 45-50° F.

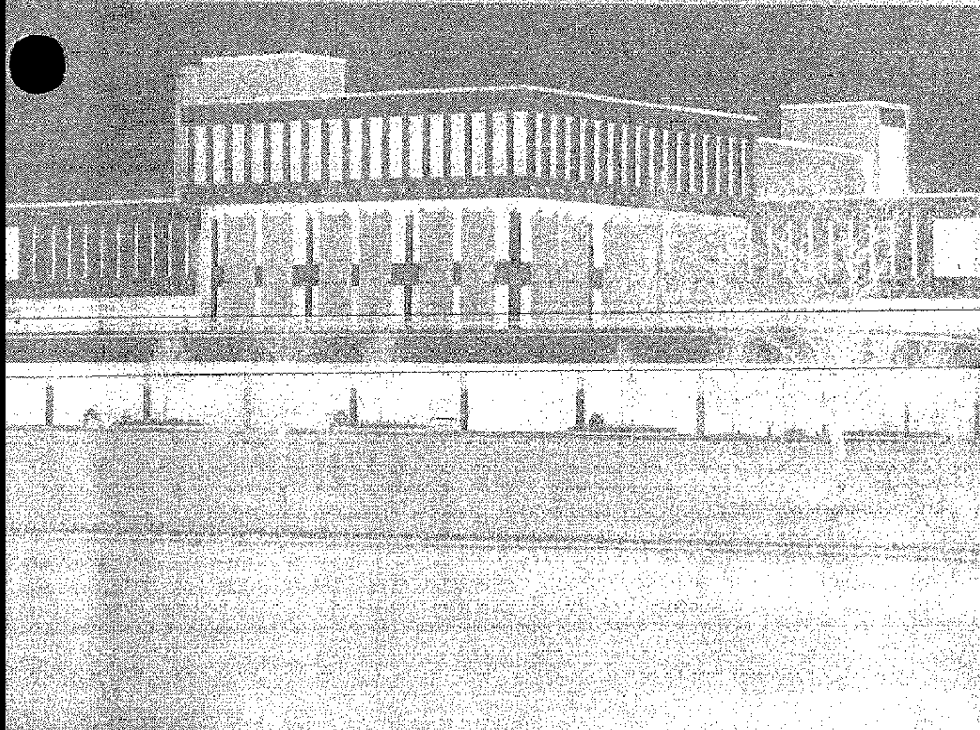
When desiccant is added, users can raise the coil temperature of existing cooling systems, increasing efficiency and reducing costs. Desiccant cooling can also be an excellent way to reduce the need for new generating capacity or reduce electric demand charges. In fact, desiccants can be combined with absorption or engine-driven chillers to reduce electric demand for cooling load during on-peak periods.

"I've been in this business for more than 20 years," Odom concludes. "This is the first store I've ever seen that didn't have a major equipment breakdown during the summer because of humidity condensation on the coils. The natural gas desiccant cooling has made a huge impact. We've improved comfort. The products and cases look great. And it's very cost effective.

I would definitely recommend it."

nicor

ELGIN COMMUNITY COLLEGE



PROJECT:

Elgin Community College
Elgin, Illinois

ISSUE:

- High cost of electricity
- Power reliability

SOLUTION:

- 3,080 kW gas-fired cogeneration system
- 1,350-ton natural gas air conditioning system

RESULTS:

- \$400,000 annual savings
- Significantly improved electrical and computer system reliability

LOCAL COLLEGE SAVES \$400,000 ANNUALLY WITH GAS TECHNOLOGIES AND SOLVES ITS RELIABILITY CONCERNS

Administrators at Elgin Community College (ECC) wanted to learn more about the substantial cost savings and energy reliability possible with natural gas technologies. The tutor of choice? The energy experts at Nicor. Together, they implemented a smarter energy strategy using gas-fired cogeneration and natural gas cooling, which now save the college nearly \$400,000 each year. The demand charge savings alone approaches \$275,000.

COGENERATION

After reviewing a detailed feasibility study from Nicor engineers, the college selected four engines from Waukesha, with a capacity of 3,080-kW. Online May 1997, the system supplies power for more than 93% of the main campus (approximately 623,000 square feet). The cogeneration system provides reliability in the event of electric utility power outages and brown outs, allowing the college to keep their electrical equipment and computers running. ECC is so pleased with the performance of the system they are adding a fifth engine in 2003 to handle the remaining existing campus plus planned future expansion.

GAS COOLING

For space conditioning, ECC initially opted for a 550-ton, single-effect absorption chiller installed in June 1998. An additional 800-ton unit was installed in 2003. The central chiller plant serves over 56% of the campus.

Members of the facility staff report that unseasonably hot weather is now a "hot issue" with the new chillers in place. On the hottest days of summer, the gas chillers are running efficiently, providing reliable air conditioning for ECC.

RESULTS

"We have been thrilled with the results of the changes," says Paul Dawson, ECC managing director of facilities. "Besides the \$400,000 annual savings, these gas technologies have helped us improve our energy reliability. That's a critical issue for us. We wanted a solution that would confidently keep our campus operational year-round, regardless of extreme heat during the summer. We now have that confidence. The elimination of power spikes is almost worth it alone." Dawson points out, "The college is also required to be a FEMA (Federal Emergency Management Agency) shelter in times of emergency. These gas technologies give us the peace of mind that the shelters will be fully functional should we ever need them."

"With cogeneration," he continues, "we have virtually eliminated all of the power spikes that could affect the central computer mainframe and more than 2,000 personal computers in those buildings, not to mention the man hours saved by not having to reboot PCs and recover lost data. In addition, the elimination of brown outs really lowers the stress on the large motors."

nicor

WP (C-8)4J 5/6

Hoffer Plastics

PROJECT:

Hoffer Plastics
South Elgin, Illinois

ISSUE:

- High electricity costs
- Recurring power failures
- Poor power quality

SOLUTION:

- 9 – 800 kW power generation engines

RESULTS:

- Savings of over \$1 million annually
- Elimination of power failures
- Gained competitive advantage

HOFFER PLASTICS MAINTAINS CONSTANT OPERATION AND SAVES MILLIONS EVERY YEAR WITH POWER GENERATION SYSTEM

Lowering energy costs and ensuring reliability has proven to be key ingredients to the recipe for success for Hoffer Plastics. As the custom plastics manufacturer of components for the automobile, electronic, beverage, consumer products and lawn and garden industries grew to currently operating 91 custom injection molding presses in their 360,000 square foot facility, high electric bills and recurrent power outages caused the company to look for a permanent solution for what was proving to be a very costly problem.

The family-owned company has always been committed to consistent growth and complete customer satisfaction. As part of that commitment, the company continually focused on acquiring and maintaining technologically advanced machinery and operating equipment in order to meet customers' quality expectations. Additional equipment meant increased electric load.

As our company grew from its original 2,400 square foot facility to its current size, we quickly realized that we needed to find a way to control our energy costs and ensure the constant operation of as many as 91 molding presses," said Perry Hazelwood, Maintenance Manager for Hoffer Plastics. "Our operations run 24 hours a day, six days a week – and even Sundays when necessary. Electric prices were high and we were experiencing inconsistent power quality from the local utility. One power outage lasting only half of a second would cause our operation to shut down for four to six hours as we

restart each and every press. The loss of product and production time had to be eliminated."

A feasibility study for an on-site generation system was conducted. The study revealed that Hoffer would save approximately \$1 million a year on their electric bill and that the system would pay for itself in three years. More importantly, the power generation system would give Hoffer a tremendous competitive advantage by offering consistent service to their customers.

The solution to Hoffer's power problems involved the installation of 8 – 800 kW power generation engines generating the company's entire plant load, running five days a week for 13.5 hours a day and operates in parallel with the host utility. In addition, reliability will never be an issue ever again as the system provides a constant source of power.

"We have been very pleased with the power generation system. It really did pay for itself in just three years. In fact, we installed a ninth engine in 1995 which allows us to generate 72 MW of power," said Hazelwood. "The original system was installed 12 years ago and it has completely avoided the interruptions from the local utility and has continued to save our company approximately \$1 million a year every year – and it is still doing that today. Nicor made it very easy for us to make solid energy decisions that helped our company continue its success and we will certainly look to them again for future energy solutions."

The Nicor logo features the word "nicor" in a lowercase, sans-serif font. Above the letters "i" and "c" is a thin, curved line that arches over them, resembling a stylized arc or a power line.

Presbyterian Homes

PROJECT:

Presbyterian Homes, Evanston, IL

ISSUE:

- Eliminate power interruptions
- Control energy costs

SOLUTION:

- 2400 kW gas-fired cogeneration system

RESULTS:

- Over \$400,000 annual savings
- Elimination of power interruptions

CONTINUING CARE COMMUNITY SOLVES RELIABILITY PROBLEMS AND SAVES OVER \$400,000 ANNUALLY WITH COGENERATION

Providing quality health care and safety for residents is of greatest importance to health care providers. Lives depend on constant operation of equipment as well as a comfortable living environment — therefore power failures simply can not be tolerated. For Presbyterian Homes, a not-for-profit continuing care provider of independent living, assisted living and nursing care to over 1,600 older adults on several Chicago area campuses, reliability became a problem after a nine-hour power outage wreaked havoc on one of their campuses.

A winter ice storm brought a surprise power outage to their 40-acre Westminster Place community in Evanston causing quite a disruption for their approximately 600 senior residents. A continuing care community such as theirs requires constant power to operate essential equipment such as oxygen machines and emergency call buttons. As temperatures continued to drop outside, there was also much concern over the safety and well being of their residents since the facility must also maintain a constant comfortable temperature.

This power outage caused the management team of Presbyterian Homes to recognize that an

immediate and permanent solution was needed to avoid future power interruptions, so they turned to Nicor for help.

The solution to their reliability problem was a 2,400 kW cogeneration system that provides power reliability for the facility and significantly reduces energy costs. The cogeneration unit operates 13 hours a day, five days a week (Monday – Friday) from 9 a.m. to 10 p.m. to provide power for the facility. In addition, exhaust heat and jacket water heat are recovered from the unit and provide low-pressure steam that is used by the facility's boiler system to heat the facility in the winter and supply the absorption chillers in the summer for cooling.

On average the cogeneration system is saving Presbyterian Homes over \$400,000 annually in energy costs.

"The environment we provide to elderly adults had everything to do with our decision to pursue power generation," said Keith Strohlgren, Vice President of Operations for Presbyterian Homes. "Loss of power shouldn't be an option for our residents. And thankfully, our residents now find comfort in our new constant source of power."

nicor